The horizontal distance from *a* to ZC will be the parallax in altitude.

Set this off as CA, making an angle of 21° 30′ with CZ.

A is the observer's place at conjunction.

It is at once evident that the Moon's disappearance must have taken place more than an hour before conjunction. Take, then, an hour angle of $3^h\ 10^m$ or $1\frac{1}{2}$ hours before ♂, and with this as an included angle, and with the star's polar distance as a side, rework the observer's place. This will now be found to have

Zenith distance about	56°	30

and

Parallactic angle .	33	35

With these measures determine C*b* and CB in the same manner as C*a* and CA were done before. B is then the observer's place $1\frac{1}{2}$ hours before conjunction. Join AB—remembering that it is a portion of an elongated ellipse. Measure backwards upon the Moon's course $Hh = \frac{1}{2}$ HO, and *h* becomes the Moon's place corresponding to B. By means of the diverging scales on the drawing, the line AB may be divided into 9 divisions each measuring 10 minutes, and H*h* into 15 divisions each measuring 2 minutes. Having marked off as many of these divisions as may seem requisite, take the Moon's semidiameter suited to the parallax 60′, and it will be found to reach across and bridge the interval between the two points on the lines H*h* and AB due to the time $1^h\ 14^m$ approximately before conjunction. By working in a similar manner the interval for the reappearance, it might be shown to agree most nearly with the time 8 minutes before conjunction;

These Greenwich times therefore are	10	51
and	11	57

These predictions are identical with those given in the *Nautical Almanac*, but are quite independent of it.

If the angle at the Moon's vertex for the observation is required, join the centre C with the observer's place at the time of the phase in question, and having drawn a circle representing the Moon, draw a straight line through its centre parallel to the former one. It will cut the Moon's circumference at the proper points for estimating the angle required. The figure gives the erect image, and must be allowed for accordingly when required for the inverted image.

On a Method of Destroying the Vibrations in a Mercurial Reflector.

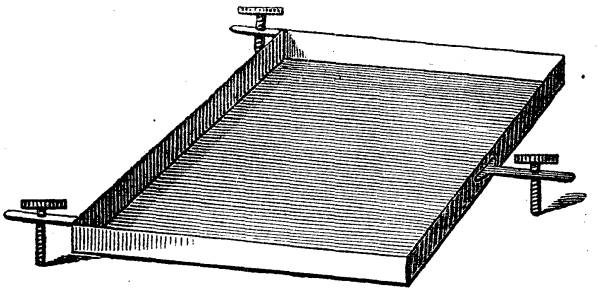
By M. de Boë, of Antwerp.

(*Communicated by Capt. Wm. Noble.*)

M. de Boë (Anvers) pense avoir perfectionné le système d'observation des fils de la lunette méridienne sur le bain de mercure.

Il emploie une cuvette à trois vis calantes, au fond de laquelle il place une plaque daguerrienne, sur laquelle il laisse tomber quelques gouttes de mercure. A l'aide de ce procédé les vibrations sont à peu près complètement annulées.

La cuvette est à fond plan.



Avant de laisser tomber le mercure sur la plaque daguerrienne, on la frotte avec le doigt et un peu de mercure ; alors le fond du liquide devient plus adhérent, ce qui est la principale cause qui empêche les vibrations.

It will be seen that the method of M. de Boë is merely a modification of that described by Prof. Pritchard before the Roya Astronomical Society. (*Monthly Notices*, vol. xiii., Jan. 1853, pp. 61–66 ; see also vol. xxxvi., Dec. 1875.)—W. N.

On a Method of making a Pendulum swing in an approximately Cycloidal Arc. By General M. C. Meigs, U.S.A.

I have been amusing myself by making a "Baily compensating seconds pendulum" for an old clock.

On hanging it for the first time I notice that it twists in swinging. The twist is synchronous with the vibration of the pendulum, and at the middle of the vibration, when the pendulum is vertical, its suspending spring is flat and straight. The twisted spring is shorter than the flat one, and this twisting therefore shortens the radius of curvature of the arc described by the centre of oscillation after it passes the vertical on each side.

By suitably proportioning the width and thickness of the suspending spring, this shortening of the radius might be so regulated that the arc described would be very nearly, and if the work is perfect accurately, cycloidal.

The twist may be given by making the crutch strike a round bar placed in front of the pendulum rod, and not in the plane of vibration: the further this bar which receives the impulse is from the plane of the pendulum, the greater the twist.